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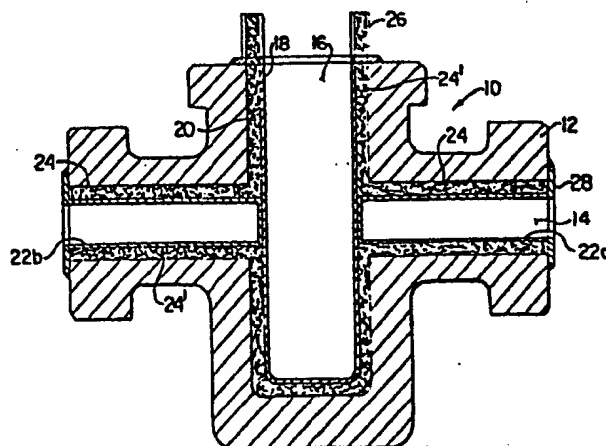
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(54) Valve body and method of producing same.

(57) A valve body (12) and method of producing same, particularly adapted for use with highly corrosive fluids having the internal passages (14, 16) thereof lined with a metal (24') more resistant to corrosion than the remainder of the valve body (12); the lining is of consolidated metal powder (24') which has been bonded to the passage interior walls (20, 24) and consolidated by hot isostatic pressing.

*corrosion resist.*

*sleeve = "core"*  
*sacrificial*  
*& HIP w/ powder*



*\* HIP*

\* powdered metal is confined within a space defined by the passage walls and an internal sleeve or sleeves that is inserted within each passage in spaced apart relation from the wall thereof. The powdered metal is then filled in this space between the sleeve insert and the passage wall. Typically, the assembly is evacuated to a subatmospheric pressure prior to hot isostatic compacting. The sleeve may be made from any conventional material but mild carbon steel is preferred. This material may also be used for the valve body. After hot isostatic pressing the passages are machined in the conventional manner which machining operation serves to remove the sleeve from each passage.

\* → The invention will be more particularly described with reference to the accompanying drawing which illustrates in sectional elevation a valve body according to the present invention and the method of producing same.

With reference to the drawing there is shown an assembly designated generally as 10 that includes a valve body 12, which may be of mild steel. The valve body has a through passage 14 through which the fluid passes into and out of the valve. Intersecting passage 14 is a second passage 16 adapted to accomodate in the conventional manner a valve stem (not shown). In passage 16 there is inserted a mild steel sleeve 18 which is concentric with and in spaced apart relation from the wall 20 of passage 16. Likewise, similar sleeves 22a and 22b are provided in passage 14 in spaced apart relation from the walls 24 thereof and in abutting relation to sleeve 18 of intersecting passage 16. These sleeves 18, 22a and 22b may be of dimensions permitting them to be secure within the valve body without requiring welding inside the valve body; however, welding may be performed although such is not the preferred practice. It is preferred that welding not be used because welding is difficult and expensive to perform within the relatively small confines within the valve body. The space between the sleeves and the walls of the passages are filled with powdered metal 24'. Stem 26 which is shown in the drawing in association with sleeve 18 may be used to facilitate the

## CLAIMS

1. A method of producing a valve body (12) having an internal passage (14 or 16) and particularly adapted for use with highly corrosive fluids, characterised in that said method comprises confining a lining of powdered metal (24') on said internal passage (14 or 16), said powdered metal (24') being of a metallurgical composition more resistant to said corrosive fluid than the material from which said valve body (12) is constructed, heating said powdered metal (24') and hot-isostatic pressing said powdered metal (24') to densify and bond said powdered metal (24') to said internal passage (14 or 16) of said valve body (12).
2. A method according to claim 1, characterised in that said lining of powdered metal (24') is confined within a space defined by a wall (20 or 24) of said internal passages (14 or 16) and a sleeve (18, 22a, 22b) inserted within said passage (14 or 16) in spaced-apart relation to said wall (20 or 24).
3. A method according to claim 2, characterised in that said space and associated lining of powdered metal (24') is evacuated to subatmospheric pressure prior to hot isostatic compacting.
4. A method according to claim 2 or 3, characterised in that said sleeve (18, 22a, 22b) is made from mild carbon steel.
5. A method of producing a valve body (12) having a first internal through passage (14) adapted for the flow therethrough of highly corrosive fluids and a second passage (16) intersecting said first passage (14) within said valve body (12) and adapted to accommodate a valve stem, characterised in that said method comprises inserting a first sleeve (18) within one of said passages (16), said sleeve (18) intersecting the other passage (14) and being in spaced-apart relation from a wall (20) of said passage (16) within which it is inserted to form a space therebetween, inserting a second sleeve (22a) and a third sleeve (22b) within said other passage (14) and said second and third sleeves (22a, 22b) abutting said first sleeve (18)

HIP  
to interior of  
valve

↓?

